



<b>THE STUDENT ASSESSMENT OF INSTRUCTION SYSTEM THE UNIVERSITY OF TENNESSEE</b>				
Engineering Fundamentals 151	Sec # 5E959C(12)	William R. Schleiter		
Physics for Engineers I	Fall 2012	Form G	# of Students: 83	

Questions	Excellent	Very Good	Good	Fair	Poor	Very Poor	Item Mean
1. Course as a whole	29 (35%)	32 (39%)	19 (23%)	1 (1%)	1 (1%)	0 (0%)	4.06
2. Course content	35 (43%)	27 (33%)	19 (23%)	1 (1%)	0 (0%)	0 (0%)	4.17
3. Instructor overall	35 (42%)	32 (39%)	14 (17%)	1 (1%)	0 (0%)	1 (1%)	4.18
4. Instructor's contribution to students' understanding of concepts	34 (41%)	32 (39%)	12 (15%)	2 (2%)	1 (1%)	1 (1%)	4.13
5. Course organization	35 (43%)	32 (39%)	11 (13%)	4 (5%)	0 (0%)	0 (0%)	4.20
6. Opportunity to ask questions	29 (35%)	22 (27%)	18 (22%)	5 (6%)	7 (9%)	1 (1%)	3.71
7. Explanations by instructor	27 (33%)	32 (40%)	20 (25%)	1 (1%)	0 (0%)	1 (1%)	4.01
8. Contribution to student's ability to solve problems	26 (32%)	30 (37%)	20 (25%)	3 (4%)	1 (1%)	1 (1%)	3.91
9. Use of examples and illustrations	29 (36%)	34 (42%)	16 (20%)	0 (0%)	0 (0%)	1 (1%)	4.11
10. Length/difficulty of homework assignments	16 (20%)	19 (23%)	22 (27%)	18 (22%)	4 (5%)	2 (2%)	3.23
11. Exams' contribution to understanding content	23 (29%)	25 (31%)	27 (34%)	5 (6%)	0 (0%)	0 (0%)	3.82
12. Instructor's enthusiasm	41 (51%)	30 (37%)	9 (11%)	1 (1%)	0 (0%)	0 (0%)	4.37
13. Textbook overall was	8 (10%)	8 (10%)	20 (25%)	23 (29%)	12 (15%)	8 (10%)	2.41
14. Answers to students' questions	17 (21%)	27 (34%)	29 (36%)	6 (8%)	1 (1%)	0 (0%)	3.66
15. Relationship between lectures and text	14 (18%)	17 (21%)	27 (34%)	16 (20%)	4 (5%)	2 (2%)	3.19
16. Availability of extra help when needed	42 (52%)	23 (29%)	13 (16%)	2 (2%)	0 (0%)	0 (0%)	4.31
17. Interest in whether students learned	36 (44%)	22 (27%)	16 (20%)	4 (5%)	3 (4%)	0 (0%)	4.04
18. Amount you learned in the course	38 (47%)	27 (33%)	12 (15%)	2 (2%)	1 (1%)	1 (1%)	4.19
19. Relevance and usefulness of course content	43 (53%)	24 (30%)	11 (14%)	3 (4%)	0 (0%)	0 (0%)	4.32
20. Relevance and usefulness of assignments	37 (46%)	28 (35%)	10 (12%)	6 (7%)	0 (0%)	0 (0%)	4.19
21. Reasonableness of assigned work	18 (22%)	25 (31%)	19 (23%)	10 (12%)	8 (10%)	1 (1%)	3.40
22. Relationship of exams to material emphasized	30 (38%)	25 (31%)	19 (24%)	5 (6%)	1 (1%)	0 (0%)	3.98

Relative to other college courses you have taken	Much Higher	Average				Much Lower		
23. Do you expect your grade in this course to be:	6 (10%)	23 (30%)	25 (30%)	17 (20%)	3 (0%)	4 (10%)	1 (0%)	
24. The intellectual challenge presented was:	38 (50%)	32 (40%)	7 (10%)	3 (0%)	0 (0%)	0 (0%)	0 (0%)	
25. The amount of effort you put into this course was:	40 (50%)	27 (30%)	7 (10%)	6 (10%)	0 (0%)	0 (0%)	0 (0%)	
26. The amount of effort to succeed in the course was:	37 (50%)	29 (40%)	8 (10%)	6 (10%)	0 (0%)	0 (0%)	0 (0%)	
27. Your involvement in this course (asgn, atnd, etc) was:	43 (50%)	25 (30%)	8 (10%)	4 (0%)	0 (0%)	0 (0%)	0 (0%)	

28. On average, how many hours per week have you spent on this course, including attending classes, readings, reviewing notes, writing papers, and any other course related work?	
Under 2	0 (0%)
3-4	0 (0%)
5-6	2 (3%)
7-8	9 (11%)
9-10	12 (15%)
11-12	17 (22%)
13-14	13 (16%)
15-16	9 (11%)
17-18	7 (9%)
19-20	5 (6%)
21-22	4 (5%)
22 or >	1 (1%)

29. From the total average hours above, how many do you consider were valuable in advancing your education?	
Under 2	0 (0%)
3-4	3 (4%)
5-6	9 (11%)
7-8	13 (16%)
9-10	12 (15%)
11-12	14 (18%)
13-14	10 (12%)
15-16	7 (9%)
17-18	4 (5%)
19-20	6 (8%)
21-22	2 (2%)
22 or >	0 (0%)

30. Expected Grade	
A	26 (32%)
B+	16 (20%)
B	26 (32%)
C+	5 (6%)
C	3 (4%)
D	1 (1%)
F	0 (0%)
S	0 (0%)
NC	3 (4%)
Other	0 (0%)

32. Class Composition	
Fresh	62 (78%)
Soph	12 (15%)
Junior	3 (4%)
Senior	0 (0%)
Grad	0 (0%)
Other	2 (3%)

33. Wanted to take course	
Yes	67 (87%)
No	5 (6%)
Neutral	5 (6%)

31. Course Was	
In major	73 (92%)
In minor	0 (0%)
Dist. Req.	3 (4%)
Elective	1 (1%)
Other	2 (3%)

### Student Responses to Open Ended Questions

#### Question #1: Was this class intellectually stimulating? Did it stretch your thinking?

- Yes-I learned a tremendous amount from the class.
- Yes-This course allowed me to critically think about what forces, no pun intended, shape the world around me. It also gave me a fantastic opportunity to develop my problem solving skills in more depth.
- Yes-Sometimes I wouldn't fully understand the concepts that were taught, so I had to really use my brain to try and wrap my head around some of the assignments.
- Yes-It made me think and stretched my thinking much more than other classes I have taken.
- Yes-Yes, I learned a lot about a broad range of topics - covered the bases.
- Yes-Interesting concepts/applications
- Yes-It required me to be more creative and intuitive to answer problems.
- Yes-This class teaches you to think in a completely different way. i love it.
- Yes-It was all new to me but it was interesting and i really liked it
- Yes-I have never had physics before, so yes it stretched my thinking. I have learned more in this class than all of my other classes combined.
- Yes-Very challenging but enjoyable.
- Yes-It stretched my time and my brain in a really good way.
- Yes-learning to look at the causes of things and what contributed to those outcomes.
- Yes-This class got me to think effectively and presented difficult concepts with enough help generally for me to do well.
- Yes-It was the best way I have ever seen freshman engineering taught at an university.
- Yes-It was extremely difficult, because the material covered was much more in depth then any other study of physics I had ever been part of. However, it was extremely fun because of the obvious practicality of the material.
- Yes-Very good subject material made you think
- Yes-It was stimulating because the teachers did an ineffective job in teaching the lessons. I had to learn almost everything by myself.
- No-Refer to my answers for Professor Bennett's evaluation.
- Yes-I gave engineering my best try, but I believe that it is not for me.
- Yes-It tested will power, and were you able to manage your time.
- Yes-Although I took Physics in high school, this class really pushed me to do good. It was a difficult class but much needed for my major.
- Yes-Oh goodness, my brain hurts just THINKING about this class... So much brainpower spent on this subject. This class was pretty hard for me.
- Yes-It was very stimulating and challenging, but not impossible. It pushed me to think more and in a different ways unlike any course I've had before.
- Yes-you made the class easy to listen to
- Yes-Engineering fundamentals thinks outside the box with complex formulas and ideas.
- Yes-very useful info
- Yes-They made the lectures educating and interesting/ fun.
- Yes-I really liked this class because it challenged me but it was also very fun and interesting. It has been one of my most stressful classes this semester but also one of the most enjoyable. I really feel like I have learned a lot and that this class is slowly but surely teaching me how to think and use logic in everyday situations.
- Yes-It applied different types of math
- Yes-Physics is a hard course for me and the course required me to do a lot of studying.
- Yes-Many of the concepts were completely new to me, so I was challenged to think in that regard.
- Yes-This class was very intellectually stimulating. I had to put more effort into this class to succeed than I had to with any other class I've taken this semester.
- Yes-This class was comprehensive, cumulative, and required a lot of critical thinking (outside of the box).
- Yes-I learn more physics than i did in high school
- Yes-The EF 151 Lab is very helpful when covering the topics discussed. The lab provided me with many examples, all of which were very intelectually stimulating, helping me understand the concepts.
- Yes-I really enjoyed thinking about the inner workings of the world.
- Yes-It was a very good class.
- Yes-I was challenged much more in this class than any other class that I've ever taken.
- Yes-Had lots of concepts that were good for reasoning skills
- Yes-It was my hardest class

Question #2: What aspects of this class contributed most to your learning?
<ul style="list-style-type: none"> <li>Lectures and homework.</li> </ul>
<ul style="list-style-type: none"> <li>The homework and the notes from the class.</li> </ul>
<ul style="list-style-type: none"> <li>Practicing the concepts through homework contributed most to my learning, and the recitation sessions allowed me to develop an actual physical understanding of what I was learning.</li> </ul>
<ul style="list-style-type: none"> <li>I really liked the in class examples. Also, recitation was a great way to actually understand the material and the homework.</li> </ul>
<ul style="list-style-type: none"> <li>Collaborating with other students to figure out how to do the problems we had to work on.</li> </ul>
<ul style="list-style-type: none"> <li>The real-life examples.</li> </ul>
<ul style="list-style-type: none"> <li>Recitation</li> </ul>
<ul style="list-style-type: none"> <li>The excellent examples and recitations.</li> </ul>
<ul style="list-style-type: none"> <li>Everything, especially the homework and the recitations.</li> </ul>
<ul style="list-style-type: none"> <li>the homework and lecture</li> </ul>
<ul style="list-style-type: none"> <li>The lectures were great. The examples and projects in rec enabled me to understand and visualize the concepts we were studying as well as seek extra help. Great program.</li> </ul>
<ul style="list-style-type: none"> <li>Recitation and help sessions. My TA Chris Bates also explained things very well.</li> </ul>
<ul style="list-style-type: none"> <li>The homework definitely helped me the most. It gave clear examples of how to do different physics problems.</li> </ul>
<ul style="list-style-type: none"> <li>recitation was most important and doing the homework prior to the class was a great benefit.</li> </ul>
<ul style="list-style-type: none"> <li>Having pre printed notes that I filled in the blanks and worked problems on.</li> </ul>
<ul style="list-style-type: none"> <li>They gave us numerous opportunities to ask questions and the hard homework questions helped us learn. This class made me stay organized, which was very helpful</li> </ul>
<ul style="list-style-type: none"> <li>The excellent explanations provided by my instructors, and their willingness to help out whenever someone had a question.</li> </ul>
<ul style="list-style-type: none"> <li>the resitations and study room</li> </ul>
<ul style="list-style-type: none"> <li>The recitation days.</li> </ul>
<ul style="list-style-type: none"> <li>Refer to my answers for Professor Bennett's evaluation.</li> </ul>
<ul style="list-style-type: none"> <li>I enjoyed the professors. I felt like, for the most part, wanted the students to succeed.</li> </ul>
<ul style="list-style-type: none"> <li>The help sessions and SI were very useful</li> </ul>
<ul style="list-style-type: none"> <li>About everything.</li> </ul>
<ul style="list-style-type: none"> <li>The home works and the exams are an equal tie. Oh, I should include the lecture notes.</li> </ul>
<ul style="list-style-type: none"> <li>All aspects contributed about equally. The lectures were useful, but the recitations helped more with application and a more thorough understanding of material.</li> </ul>
<ul style="list-style-type: none"> <li>the hands on learning</li> </ul>
<ul style="list-style-type: none"> <li>Attending classes.</li> </ul>
<ul style="list-style-type: none"> <li>How the stuff we learned was in everyday life</li> </ul>
<ul style="list-style-type: none"> <li>The visual demonstrations.</li> </ul>
<ul style="list-style-type: none"> <li>I think that the class had lots of hands-on examples and projects, which really helped me visualize and understand things better. I also think that the recitation labs and my TA really helped me understand concepts better. It really helped me when we had practice tests; I am wish we could have those more often. I also think that, most importantly, I had two awesome teachers and one amazing TA who really cared about helping everyone succeed and were never unkind or haughty towards anyone. They never cared to explain even the most elementary things to a student and never ever acted like they were better than you or smarter than you. It really makes a difference when you have teachers who care.</li> </ul>
<ul style="list-style-type: none"> <li>the lectures</li> </ul>
<ul style="list-style-type: none"> <li>The homework by far. Doing all of that work really helped me understand what the lesson was about. Also the online discussion board was a big help as well.</li> </ul>
<ul style="list-style-type: none"> <li>The homework assignments and hands-on exercises contributed most to my better thoughts on the class.</li> </ul>
<ul style="list-style-type: none"> <li>The recitation periods contributed most to my learning. Anytime I had questions left over from lecture, my group members in recitation and my GTA were able to provide the help I needed to understand the material.</li> </ul>
<ul style="list-style-type: none"> <li>recitations</li> </ul>
<ul style="list-style-type: none"> <li>I enjoy the real world examples</li> </ul>
<ul style="list-style-type: none"> <li>Mainly repetition of processes and the availability of immediate help.</li> </ul>
<ul style="list-style-type: none"> <li>Lecture</li> </ul>
<ul style="list-style-type: none"> <li>All the examples really helped.</li> </ul>
<ul style="list-style-type: none"> <li>Collaborating with other students</li> </ul>

**Question #2: What aspects of this class contributed most to your learning?**

- Concepts
- All the discussions and small projects

**Question #3: What aspects of this class detracted from your learning?**

- Nothing
- There were not really any aspects that detracted from my learning.
- The final project. There are much better ways we could have spent those last few weeks.
- When people around me talked throughout the class or played games on their laptops, I got quite distracted.
- Having such a large class detracted me from learning.
- The notes couldn't be filled in from the textbook (petty maybe, but made working ahead nigh-impossible). The homework sometimes required concepts that really strained connection between material that had been presented - not fun to stress out about a concept you can't get without outside help. I really liked this class, but the connection between your understanding and your grade wasn't clearly exhibited - made it hard to stay enthused.
- The amount of students.
- If anything, just the size
- none of it
- I HATED taking exams in the big lecture hall. Also, the content presented in the power point slides were not always clear.
- The speed at which the last module was presented at was incredibly too fast.
- None.
- none
- How boring some of the topics covered were.
- There were negligible detractions.
- The size.
- The huge lecture hall and the fact that going to lecture was useless since they did a bad job explaining the topics.
- \
- Refer to my answers for Professor Bennett's evaluation.
- The homework was very challenging and very time consuming, maybe dial back the homework a little bit.
- Nothing really.
- It was all helpful.
- Recitation. I liked the projects, but they seemed disconnected from the material, and I honestly felt like the class would rather have just gotten help on the latest homework.
- Some parts of the projects seemed a little far from the material covered. Mainly the use of some technologies we needed to use for projects was a little to unfamiliar to be useful in such a short application of those technologies.
- Length of homework.
- Difficult
- It was rushed and hard to understand at times.
- I wish that there had been more hands on examples in lecture; there were some, but not nearly as many as I would have liked. These types of examples done by teachers and classmates make learning more interesting and fun, and I felt like I understood the material better when these explanations were made.
- two recitations
- The disparity between what is focused on in class and what happens to appear on an exam is disheartening. I found myself focusing on the more difficult and applicable concepts, which would be the focus of work, test questions and discussion for the semester, only to be blind-sided by a concept on the last exam. Do not emphasize a subject only to throw it away. I believe the averages of the exams serve as a perfect indicator.
- Nothing detracted from my learning in this class, in my opinion.
- Pace and hw.
- I needed more helpful tips of solving a problem for every problem in general
- Length of homework assignments due.
- the amount of people that were in the class
- Class size
- Repetitive homework, and not finishing all the slides in each lecture

Question #4: What suggestions do you have for improving the class?
<ul style="list-style-type: none"> <li>Nothing was very good</li> </ul>
<ul style="list-style-type: none"> <li>I would only suggest that the amount of time to complete the projects be extended.</li> </ul>
<ul style="list-style-type: none"> <li>When giving hints on the homework, don't just say, "Look at problem x." You pretty much encouraged us not to get the book at the beginning, so those "hints" are completely useless.</li> </ul>
<ul style="list-style-type: none"> <li>I, along with many other people in the class, would greatly benefit from having online problems to just practice problems that are similar to the ones that will be on the test. The past tests are also quite helpful, but sometimes they aren't all very similar to the test that we have to take. So maybe just more practice on something similar to what we will have to do so that we can have higher scores on the tests.</li> </ul>
<ul style="list-style-type: none"> <li>Give more help sessions- though there are at least 5 a week, it seemed to me that the help sessions still got really crowded at times and so going would almost be pointless because I would only get a few of my question answered, and sometimes I had many questions.</li> </ul>
<ul style="list-style-type: none"> <li>I don't really know what the university's objectives for this course are (like, do they want us to learn this stuff, or is it a creative way to weed-out lazy students?) The instruction is certainly excellent - Dr. Bennett and Prof. Schleter are amazing people - but sometimes the requirements for a good grade were slightly out of reach. I wanted an A, but I might get in the B's despite great effort.</li> </ul>
<ul style="list-style-type: none"> <li>Module 4 has a TON of information - might want to distribute some of the topics differently to lighten the load at the end of the semester.</li> </ul>
<ul style="list-style-type: none"> <li>None.</li> </ul>
<ul style="list-style-type: none"> <li>none. a well-oiled machine</li> </ul>
<ul style="list-style-type: none"> <li>maybe a little less homework</li> </ul>
<ul style="list-style-type: none"> <li>Give an option for classroom exams? That would have helped me a lot. Keep up the department and career information to point people on the right track and give direction as to why the student is here or should not be here.</li> </ul>
<ul style="list-style-type: none"> <li>Slow down the speed of module four.</li> </ul>
<ul style="list-style-type: none"> <li>It was a great class. It made me work really hard.</li> </ul>
<ul style="list-style-type: none"> <li>none</li> </ul>
<ul style="list-style-type: none"> <li>I think that some of the TA's for this class do not deserve the positions they are in.</li> </ul>
<ul style="list-style-type: none"> <li>Give more time for the final project.</li> </ul>
<ul style="list-style-type: none"> <li>Decrease the size.</li> </ul>
<ul style="list-style-type: none"> <li>Too much work for just a 4 hour class. already 3 hours of class then 3 hours of lab and the homework always take a long time to finish</li> </ul>
<ul style="list-style-type: none"> <li>The teachers should try to be less funny and do a better job teaching the class.</li> </ul>
<ul style="list-style-type: none"> <li>Refer to my answers for Professor Bennett's evaluation.</li> </ul>
<ul style="list-style-type: none"> <li>Just address the homework problem, all and all, a solid class.</li> </ul>
<ul style="list-style-type: none"> <li>better hints or updated hints from the textbook.</li> </ul>
<ul style="list-style-type: none"> <li>Excellent class.</li> </ul>
<ul style="list-style-type: none"> <li>I would say less homework, but then again you need to do as many problems in physics to truly understand the concepts I think.</li> </ul>
<ul style="list-style-type: none"> <li>Two main things: In the lecture, when the lecturer asks a question, it is a good idea to repeat the answer that was given. Several questions went along these lines: "What equation should we use in this situation?" [indiscernible answer from the front row] "That's exactly it!" *Proceeds to work on problem without clarifying what the equation is or how to use it.* Oh, and another thing: When you are giving out an equation, why give an equation that says something like this: This= The derivative of A ----- The derivative of B Why on earth did that seem like a good idea? Just say that it either equals A --, or give what should REALLY go in place of A and B after the B derivative is taken. Recitation: Like I said, it didn't seem to mesh. I liked it, and Geoff is awesome, but still. Didn't seem as good as it could have been. Sorry I have no advice in regards to how to fix this, I really have no clue.</li> </ul>
<ul style="list-style-type: none"> <li>The class was very well run. Nothing especially comes to mind on how it could be made better.</li> </ul>
<ul style="list-style-type: none"> <li>Shorter homework assignments.</li> </ul>
<ul style="list-style-type: none"> <li>I would suggest there be more hands on examples in lecture. Also, I would like to suggest an alternate grading system for the tests. After we took our first test, we were given the option to rework the problems that we missed for 40 percent of the credit back. This was not offered to the other three exams we had over the semester. My proposal is a student can rework the problems that he missed on any or all of the four tests that he wants to rework. Then, at the end of the semester, he decides which test he wants the 40 percent added back to. I am suggesting this because sometimes students struggle on the first test, but sometimes students struggle on the tests later in the semester. By reworking all of the questions they missed, students can see exactly what they were struggling with and how they can improve it for the next test. It also allows those who struggle in the last half of the semester instead of the first half to have a curve on one of their tests similar to those who stru</li> </ul>
<ul style="list-style-type: none"> <li>drop a recitation. it seemed unnecessary</li> </ul>
<ul style="list-style-type: none"> <li>The pacing of the class needs to be reworked. Far too little time was available at the end of the semester to tackle the more complex problems and the final class project. Given the disorganization and hurry present in every other class students must take at semester's end, there needs to some allowance in which to work effectively.</li> </ul>
<ul style="list-style-type: none"> <li>Not everyone had access to the textbook, and it was only recommended for the class, so instead of referencing problems in the text on Homework Hints, maybe work those examples out and post the link to the worked out problem on the Hint instead.</li> </ul>
<ul style="list-style-type: none"> <li>spending more time on some of the harder sections.</li> </ul>

**Question #4: What suggestions do you have for improving the class?**

- More breaking down of the problems
- A lessening of the homework load would be helpful. Either that, or having long term deadlines for credit instead of ones that taper stepwise off.
- Maybe some homework assignments could just be for practice and not as a grade that way the looming amount of work doesn't detract from learning or stress a student out whenever they spend 2 hours doing 11 problems and even though they try to get the problem right through numerous ways and countless trials only 4-5 of the 11 are right. If there were some more practice problems online that were like the homework but maybe were like 2 percent extra credit (or no part of the grade at all) and those problems had like step by step solutions with explanations for each step, no matter how trivial, it would make the content easier to understand. The examples worked during lecture are good bases/structures for the homework, but there isn't much of a "hands on" approach to the word problems that won't affect your grade, which is pretty irritating. Hands on here doesn't mean like real world touch, but more like the student being able to try to work through the problem on their own, and make mistakes
- smaller classes
- It seems like a significant amount of time in recitation is spent trying to kill time, and I think this time would be much better spent by allowing students to have free discussion and collaboration with other students.
- Cover all section material in lecture, and make homework more concise
- Have less homework